

Student ID: .....

Major: CE / EE

## **ECE3156 – SOFTWARE ENGINEERING**

### **CO1- Test**

Time: 30 minutes

Total marks: 25

**Instructions:**

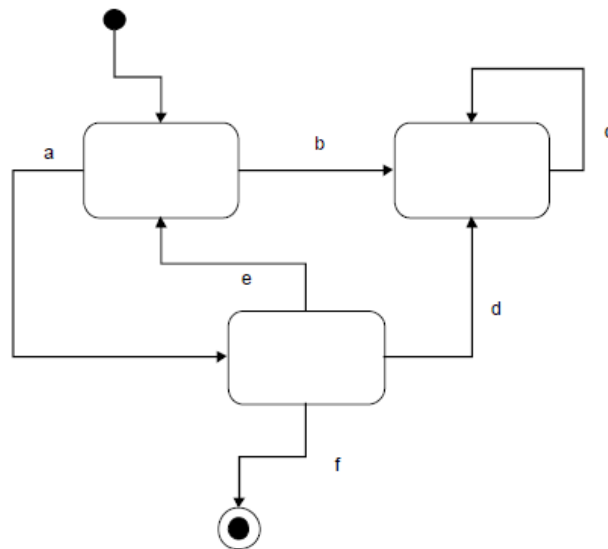
1. This question paper consists of 2 pages with 1 question only.
2. Please print all your answers in the answer sheets provided.

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#### **Question 4**

- (a) Software design process may involve developing several models of the system at different levels of abstraction. Explain the following key activities in a general sequential design process.
- i. Data design. [2 marks]
  - ii. Architectural design. [2 marks]
  - iii. Interface design. [2 marks]
  - iv. Procedural design. [2 marks]
  - v. Component design. [2 marks]
- (b) What are the three types of interfaces generally present in a software system? State and explain briefly. [3 marks]

(c)



**Figure Q4: Sample state machine diagram**

With reference to Figure Q4, list three sequences of events (each beginning from the start state) that will cause the state machine to get stuck (i.e., not able to end).

[3 marks]

- (d) Compare and contrast the following two software testing techniques and relate them to the phases of software engineering.
- White box* testing
  - Black box* testing

[4 marks]

- (e) Consider the following organization disciplinary policy:

The policy states that if an employee receives three consecutive disciplinary warning letters during a performance review, the employee will be terminated without the possibility of reinstatement. However, if the employee manages to get at least one commendation letter during a performance review, the warning letter counter will reset to zero.

Draw a flowchart of this policy procedure using common flowcharting shapes and symbols.

[5 marks]

**End of Paper**